UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/490,187	01/23/00	CHAUDHARY	P USTD:0680

EXAMINER	
MCGARRY, S	
ART UNIT	PAPER NUMBER
1635	6

DATE MAILED: 03/28/01

HM12/0328

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/490,187	Applicant(s) CHAUDHARY, PREET M.	
	Examiner Sean McGarry	Art Unit 1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 January 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other: .

DETAILED ACTION

1. Claims 1-21 **were** rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These grounds of rejection have been withdrawn.

2. Claims 1-21 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This ground of rejection has been withdrawn.

3. Claims 1-21 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. This rejection is maintained for the reasons of record set forth in the Official action mailed 9/28/00.

The instant invention is drawn to methods of detecting the presence of or predisposition to an ectodermal disorder via a "TAJ" gene or gene product and to methods of treating "TAJ" associated ectodermal disorders.

The instant specification discloses a "TAJ" nucleic acid and protein sequence (SEQ ID NO: 1 and 2). The specification discloses at page 1 that there are over 150 different ectodermal dysplasia syndromes. The specification discloses at page 3 that ectodermal disorders may arise from temporal, developmental, quantitative or qualitative TAJ misexpression and that a wide variety of causalities may effect such misexpression such as genetic lesions or mutations gene itself or direct or indirect TAJ gene regulatory sequences, the misexpression of genes or gene products which may in turn regulate TAJ expression or TAJ function, etc. Table 1 of the instant specification discloses "TAJ" mutants that result in truncated TAJ proteins. This table does not provide any indication what ectodermal dysplasia might be associated with the disclosed mutants and further does not provide any guidance as to how or where these sequences were detected or constructed and are all based on SEQ ID NO: 1 and 2. Further it does not tell one whether these specific mutants are associated with autosomal dominant or recessive ectodermal dysplasia in hetero or homozygous mutants. The instant specification asserts at page 3 that detection can be made directly (detecting protein or nucleic acid), indirectly (detecting specific function of the target) or inferentially (detecting a diagnostic sequence in a genomic or proteomic database). Table 2 discloses "exemplary allele specific TAJ antibodies and hybridization probes". Table 2 indicates specific binding and specific hybridization as "+++". There is no legend that defines what

"+++" indicates. Does "+++" represent that there is high level, low level, intermediate binding and relative to what? Table 3 discloses "exemplary agents shown to allele specifically modulate functional expression of a TAJ gene or gene product". Table 3 uses "+++" to designate modulation. Does "+++" mean increased activity , decreased activity, what level and relative to what? The specification discloses in Example I the differential expression of murine TAJ in mouse embryos and provides a prophetic animal model of Cloustron syndrome. Example II discloses that TAJ activates JNK upon transient over expression of TAJ and discloses a cJun transcriptional activation assay with no results. Example III is a protocol for high throughput TAJ polypeptide-Traf binding interference assay with no results. Example IV appears to be a prophetic example of genomic diagnosis of suspected Cloustron's syndrome. Example V (page 12) is a prophetic example of corrective gene transfer in ectodermal dysplasia. Second example V (page 15) is a prophetic example of localized in vivo genotypic and phenotypic correction.

The instant specification does not provide sufficient guidance or examples that would show by correlation the practice of the instant invention without undue experimentation. Since there are so many (over 150) disease states and little guidance for one of skill in the art to detect or treat such diseases based on the instant specification one would be left to undue trial and error experimentation. For example, the instant invention is based on the association of a TAJ gene and ectodermal dysplasia. The instant specification is sketchy as to the correlation of TAJ and ectodermal dysplasia. No specific examples or discussion is provided that teaches one of skill in the art the role TAJ genes or gene products in and ectodermal dysplastic state. The specification

provides tables that appear to be ambiguous in what they disclose. These tables nor the specification provides any guidance as to what ectodermal dysplasia diseases even the mutants of Table 1 are associated. The instant invention appears to be an invitation for one in the art to draw correlations to any nucleic acid sequence or protein that might be a TAJ to the numerous disease states contemplated. This is not a simple task considering the large number of diseases that manifest in numerous different ways in different cells and involve different biological pathways. For example, ectodermal disorders may arise from temporal, developmental, quantitative or qualitative TAJ misexpression and that a wide variety of causalities may effect such misexpression such as genetic lesions or mutations gene itself or direct or indirect TAJ gene regulatory sequences, the misexpression of genes or gene products which may in turn regulate TAJ expression or TAJ function, etc and one of skill in the art is left to make these correlations themselves. Claim 1 even recites that a correlation must be made. The instant specification has essentially demonstrated that SEQ ID NO:2 activates the JNK pathway upon over expression and that hTAJ is expressed in prostate cell and in fetal kidney cells (fetal kidney cell line) and that TAJ is differentially expressed in murine fetuses. The information provided in the Tables is unclear as to how it provides evidence for TAJ association in ectodermal dysplasia. Without this basic knowledge or correlative evidence or guidance it is unclear how one of skill in the art could practice the claimed invention without undue trial and error experimentation.

4. Applicant's arguments filed 1/10/01 have been fully considered but they are not persuasive.

Applicant arguments and the opinion declaration of Richard Gaynor have been considered but do not overcome the rejection of record. The arguments presented and the opinion declaration of Richard Gaynor are parallel and will be addressed as together. It appears proper to address applicant assertion that the data presented has been attached and that quantitative data is being required. This is not so. The data in the Tables is ambiguous and can not be used by the examiner to assess the enablement of the invention since it is not clear what these Tables show. As was stated in the Official Action "Table 2 discloses "exemplary allele specific TAJ antibodies and hybridization probes". Table 2 indicates specific binding and specific hybridization as "+++". There is no legend that defines what "+++" indicates. Does "+++" represent that there is high level, low level, intermediate binding and relative to what? Table 3 discloses "exemplary agents shown to allele specifically modulate functional expression of a TAJ gene or gene product". Table 3 uses "+++" to designate modulation. Does "+++" mean increased activity , decreased activity, what level and relative to what?" Clarification of the data presented would be beneficial.

Applicant argues that the method of the invention include simply "correlating the detected TAJ gene product with an ectodermal disorder." As stated in the office action, the specification does not provide sufficient guidance for such without undue trail and error experimentation. The instant specification does not provide one example of such a correlate with any specific TAJ mutant and any specific ectodermal disorder. For example, ectodermal disorders may arise from temporal, developmental, quantitative or qualitative TAJ misexpression and that a wide variety of

causalities may effect such misexpression such as genetic lesions or mutations gene itself or direct or indirect TAJ gene regulatory sequences, the misexpression of genes or gene products which may in turn regulate TAJ expression or TAJ function, etc and one of skill in the art is left to make these correlations themselves for the over 150 know ectodermal disorders. Applicant asserts that one may simple refer to known correlates. No such known correlates are provided or cited in the instant specification. The methods of modulation suffer from the above problems of determining what TAJ mutant may effect what ectodermal disorder. Again the data provided would be more useful if it could be clarified what the data actually represents. Applicant asserts that all that is required for the instant claims is that one in the art be able to make one correlation of one TAJ gene to one ectodermal disorder. The claims are not so limited. The breadth of the claims includes methods of treating any TAJ disorder and that is the scope that is being considered.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean McGarry whose telephone number is (703) 305-7028.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John LeGuyader, can be reached on (703) 308-0447.

Certain papers related to this application may be submitted to Art Unit 1635 by facsimile transmission. Papers should be faxed to Art Unit 1635 via the PTO Technology Center Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see C.F.R. 1.6(d)). The Art Unit 1635 FAX number is (703) 308-4242 or (703) 305-3014. NOTE: If Applicant **does** submit a paper by Fax, the original signed copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

March 23, 2001

SEAN McGARRY
PRIMARY EXAMINER
Technology Center 1600